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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
QUASH, ANTHONY G	
ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 12/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/512,943	ALEXANDRE, JEAN-MARC	
	Examiner	Art Unit	
	Anthony Quash	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12, rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "radiation" in claims 1 and 3 is a relative term which renders the claim indefinite. The term "radiation" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear in the claims which type of radiation the electronic system is being shielded from. Appropriate correction is required.

The term "reasonable" in claim 1 is a relative term which renders the claim indefinite. The term "radiation" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear in the claims which type of radiation the electronic system is being shielded from. Appropriate correction is required.

It is also unclear in claim 1 lines 22-23, where the, "... optionally placing several identical vulnerability circuits ..." are to be placed. Appropriate correction is required.

The term "supplies" in claim 3 is a relative term which renders the claim indefinite. The term "radiation" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear in the claims which type of radiation the electronic system is being shielded from. Appropriate correction is required.

Claim 3 recites the limitation "such radiation" in line 34 and "said two assemblies" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Eckhardt [329]. Eckhardt [329] discloses an electronic system able to operate under irradiation, characterized in that it comprises a first group of components (14) incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means

known as shielding (12), a second group (20,30,40) of second components which are less vulnerable than the first and not protected by shielding, connection means (16,26,42) between the two assemblies arranged so as not form a penetration path for ambient radiation. See Eckhardt [329] abstract, fig. 1, col. 2 lines 50-68, and col. 3 lines 1-25, and 45-55.

Claims 3,4,10 are rejected under 35 U.S.C. 102(b) as being anticipated by Marcantonio [826]. As per claim 3, Marcantonio [826] discloses and electronic system able to operate under irradiation characterized in that it comprises a first group (12) of components incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means know as shielding, a second group (27) of second components, which are less vulnerable than the first and not protected by shielding , and connection means (22) between the two assemblies arranged so as not to form a penetration path for ambient radiation. See Marcantonio [826] abstract, figs. 1-9, col. 2 lines 50-69, col. 3 lines 20-40, and col. 4 lines 15-65.

As per claim 4, Marcantonio [826] discloses the shield being constituted by two half-shells protecting the components. See Marcantonio [826] fig. 4 and col. 5 lines 35-60.

As per claim 10, Marcantonio [826] discloses an electrically insulating but thermally conductive product being incorporated between the first group of first components and the shield in order to remove via the shield the heat generated by the

operation of the electronic components. See Marcantonio [826] fig. 4, col. 3 lines 20-40, col. 4 lines 15-40, 55-69 and col. 5 lines 35-55.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3,5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495]. As per claim 3, Ishikawa [495] teaches an electronic system able to operate under irradiation characterized in that it comprises; a first group of components incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means known as shielding (15). It also teaches a second components which are less vulnerable than the first. In addition, Ishikawa [495] teaches a connection means between the two assemblies arranged so as not to form a penetration path for ambient radiation. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60. However, Ishikawa [495] does not specifically state that the second group not being protected by shielding. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to not add shielding to a second group of components that are less vulnerable to radiation in order to lesson the weight for transport.

As per claim 5, Ishikawa [495] teaches the first group of first components also incorporating at least one microcontroller located in a shield. . See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60.

As per claim 6, Ishikawa [495] teaches the first components located within a shield are connected to an interface card by a flexible printed circuit along a baffle provided at the input/output of the shield. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495] in view of Vail [672]. As per claim 7,Ishikawa [495] teaches the first group of first components comprising a microcontroller located within a shield and connected to interfaces, across a baffle in the shield, via flexible integrated circuits carrying supplies, a multiplexed bus belonging to the microcontroller, and control and data signals. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60. In addition, Ishikawa [495] also teaches a DC/DC converter. See fig. 7. However, Ishikawa [495] does not specifically state the first group of components includes an analog/digital converter. Vail [672] teaches that it was known in the art at the time the invention was made to use A/D converters in electronic systems in order to

measure temperature. Vail [672] also teaches that it was known to shield A/D converters from radiation. See Vail [672] col. 1 lines 24-35. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group of components include an analog/digital converter shielded from radiation in order to provide a digital signal representative of the sensed temperature in space satellites as taught in Vail [672].

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495] in view of Porter [866]. As per claim 8, Ishikawa [495] teaches all aspects of the claim except for having the first group of first components be mechanically connected to the remainder of the system by a mechanical suspension. Porter [866] does teach the first group of first components being mechanically connected to the remainder of the system by a mechanical suspension. See Porter [866] abstract, fig. 1A, col. 1 lines 5-67, col. 5 lines 44-50, col. 9 lines 3-25, and col. 11 lines 25-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group of first components be mechanically connected to the remainder of the system by a mechanical suspension in order to provide protection to the electronic modules against shock and vibration during transport as taught in Porter [866].

As per claim 9, Ishikawa [495] in view of Porter [866] teaches all aspects of the claim except for the mechanical suspension being ensured by elastomer cores. Porter [866] does teach vibration isolators being used to ensure the mechanical suspension. See Porter [866] abstract, fig. 1A, col. 1 lines 5-67, col. 5 lines 44-50, col. 9 lines 3-25,

and col. 11 lines 25-30. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use elastomer cores, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Allowable Subject Matter

Claims 1-2, and 11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach nor suggest all of the stages for a process to design an electronic system able to operate under irradiation as claimed in claim 1.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 5,635,754 to Strobel et al; 5,953,206 to Jondrow; 6,011,299 to Brench; 6,262,363 to Bortolini et al; 6,164,987 to Mirabella et al; 5,561,265 to Livshits et al; 5,639,989 to Higgins, III; and 5,821,604 to Egawa. Strobel [754] is pertinent because of its discussion on radiation shielding of integrated circuits and multi-chip modules in ceramic and metal packages. Jondrow [206] is pertinent because of its discussion on thermal dissipation and EMI shielding structure for notebook computers. Brench [299] is pertinent because of its discussion on an

apparatus to minimize integrated circuit heatsink EMI radiation. Bortolini [363] is considered pertinent because of its discussion on an electromagnetic shielding method and apparatus. Mirabella [987] is pertinent because of its discussion of a shielding and grounding assembly for electronic equipment. Livshits [265] is pertinent because of its discussion on integrated circuit packaging. Higgins [989] is pertinent because of its discussion about a shielded electronic component assembly and method for making the same. Egawa [604] is pertinent because of its discussion on an integrated circuit device having shield structure against electromagnetic waves.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

A. Quash 12/9/02

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